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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,699	08/25/2005	Eun-Duck Park	YOM-0151	2032
23413	7590	05/03/2007		
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			EXAMINER BOYKIN, TERRESSA M	
			ART UNIT 1711	PAPER NUMBER
			MAIL DATE 05/03/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/529,699

Applicant(s)

PARK ET AL.

Examiner

Terressa M. Boykin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3-29-05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

I.

Abstract

Applicant is reminded of the proper language and format of an Abstract of the Disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. The printer will no longer accept Abstracts that are more than 25 lines, regardless of the number of words. The form and legal phraseology often used in patent claims, such as "means" and "said", should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-22 are rejected under 35 U.S.C. 102(a, b, or e) as being anticipated by EP 0807657 page 9 lines 21-54, page 15 line 15 through page 18, line 56 and examples 1-14; or JP 10-045896 see abstract; USP 5045632 see cols. 1-11, Figure 1 and examples 12 and 13 and claims.

USP 5045632 discloses an bis(phosphoranylidene) ammonium salt useful as an initiator/catalyst in the reaction of oxirane groups in an epoxy resin with aromatic carbonate and/or ester linkages in monomeric, oligomeric, or polymeric carbonates, esters, or estercarbonates.

It has been discovered by the reference that when the compound containing aromatic carbonate and/or ester linkages is a polymer such as polycarbonate, polyester, or polyestercarbonate, the above mentioned initiators/catalysts do not allow a sufficient processing window for the melt blending of the initiator/catalyst and the epoxy resin with the compound containing carbonate and/or ester linkages.

FIG. 1 illustrates a DSC curve for the combination of bis(triphenylphosphoranylidene) ammonium methane sulfonate with a representative epoxy resin /polycarbonate mixture.

EP 0807657 discloses a process for producing a polycarbonate through transesterification which comprises using, as a polymerization catalyst, (1) a combination of a nitrogen-containing organic basic compound and a quaternary phosphonium salt, (2) a tetraarylphosphonium salt having a specific chemical structure, or (3) a quaternary phosphonium salt having a specific chemical structure and

containing a branched alkyl group; and a process for producing a polycarbonate which comprises the steps of preparing a polycarbonate prepolymer by preliminary polymerization and thereafter polymerizing the resultant prepolymer in a state of a solid phase by the use of a quaternary phosphonium salt as a catalyst. By using any of these processes it is made possible to produce, in extremely high efficiency, a high quality polycarbonate being excellent in appearance, heat resistance, hydrolysis resistance and the like.

JP 10-045896 discloses the preparation of polycarbonate is new, where polycarbonate is prepared in ester exchange reaction using polymerization catalyst of (a) N-containing organic basic compounds and (b) aryl-containing quaternary phosphonium salts. The polycarbonate product may be used as optical elements. The reaction speed is improved by the use of the catalyst, and obtained polycarbonate has good color, heat-resistance, and hydrolysis resistance.

Specifically the method discloses the efficient production of a polycarbonate polymer which is excellent in resistance to heat and hydrolysis and in color tone and is useful as an optical material by carrying out the ester-interchanging reaction by using specifically combined catalysts at high reaction rate.

In the method is disclosed a dihydroxy compound (for example, bis-phenol A) and carbonic diester (for example, diphenyl carbonate) are subjected to the transesterification reaction, (A) a nitrogen-containing base, for example, an aliphatic or aromatic tertiary amine, a nitrogen-containing heterocyclic compound or a quaternary ammonium salt and (B) a quaternary phosphonium salt of formula I [R_2 is organic group where at least one is an aryl; X_2 is a halogen, OH, the formula: BR_4 (R is H, a

hydrocarbon group)], formula II (Y_2 is CO_3), formula III (R' is a hydrocarbon group, an alkoxy, OH or the like; n is 1-3) are combined and used as a catalyst.

Each of the references discloses a polycarbonate resin prepared from the same components as claimed by applicants. Note further that a process should recite *all positive, active step and any process parameters necessitated by the specification* so that the claim will "clearly set out and circumscribe a particular area with a reasonable degree of precision and particularity, In re Moore, 169 USPQ 236, and make it clear what subject matter the claim encompasses, as well as make clear the subject matter from others would be precluded. In re Hammack 166 USPQ 204. Applicants method is broadly defined and thus does not clearly differentiate over the prior art. Since the disclosed parameters and amounts, i.e. pressure and temperature ranges as well as the amounts in mol%, are expressed differently, they nevertheless appear to overlap those claimed and thus are not distinguishable over the prior art. In view of the above, there appears to be no significant difference between the reference(s) and that which is claimed by applicant(s). The use of terminating agents is well known in the process of making both polyhydroxy ethers and polycarbonates. Further, the employment of a 'poor' solvent to precipitate the product is customary to polymers such as polyhydroxy ethers and polycarbonates. Lastly, the condition of carrying out the process in an inert atmosphere is also well known in the art.

In view of the above, there appears to be no significant difference between the reference(s) and that, which is claimed by applicant(s). Any differences not specifically mentioned appear to be conventional. Consequently, the claimed invention cannot be

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deemed as novel and accordingly is unpatentable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1- 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5401814 see abstract, cols. 1-8 and claims.

USP 5401814 discloses a poly(hydroxy ethers) are prepared by reacting a dihydric phenol with a diepoxide in the presence of a catalyst selected from the group consisting of bis(trihydrocarbylphosphoranylidene)ammonium salt, bis[tris(dihydrocarbylamino)phosphoranylidene]ammonium salt, and tetrakis[tris(dihydrocarbylamino)phosphoranylideneamino]phosphonium salt. The reaction between the dihydric phenol and the diepoxide is conducted in an ether or hydroxy ether solvent at a temperature sufficiently high to produce a poly(hydroxy ether). Polymers prepared by the new process are more highly branched than those produced by known methods. ". *Since the disclosed parameters and amounts are expressed differently , i.e. pressure and temperature ranges as well as the amounts in mol%, they nevertheless appear to overlap those claimed and thus are not distinguishable over the prior art.* In view of the above, there appears to be no

significant difference between the reference(s) and that which is claimed by applicant(s). The use of a terminating agent is well-known in the process of making both polyhydroxy ethers and polycarbonates. Further, the employment of a "poor" solvent to precipitate the product is customary to polymers such as polyhydroxy ethers and polycarbonates. Lastly, the condition of carrying out the process in an inert atmosphere is also well known in the art.

Thus, the reference discloses except for the particular polymer, i.e. polycarbonate, as claimed. However, the reference discloses that aromatic carbonate and/or ester compounds may be monomeric, oligomeric, or polymeric moieties may also be employed therewith. Polymeric compounds such as polycarbonates, polyesters, and polyester carbonates are preferred. Polycarbonates, polyester carbonates, and polyesters derived from bisphenol A are especially preferred. Each carbonate linkage reacts with two epoxide groups; each ester linkage reacts with one epoxide group. Other than stoichiometric ratios may be used depending upon the properties desired in the pre-cured and fully cured epoxy/carbonate/ester compositions.

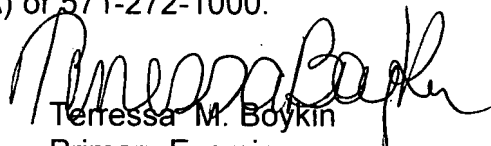
It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the particular catalyst and dihydric phenol since the process for the preparation for polycarbonates would generally be the same or similar and the reference specifically employs and discloses the use of the combination of polyhydroxy ethers with polycarbonates.

Consequently, the claimed invention cannot be deemed as unobvious and accordingly is unpatentable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terressa M. Boykin whose telephone number is 571 272-1069. The examiner can normally be reached on Monday-Thursday 10-5:30 Friday (work at home).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Terressa M. Boykin
Primary Examiner
Art Unit 1711
